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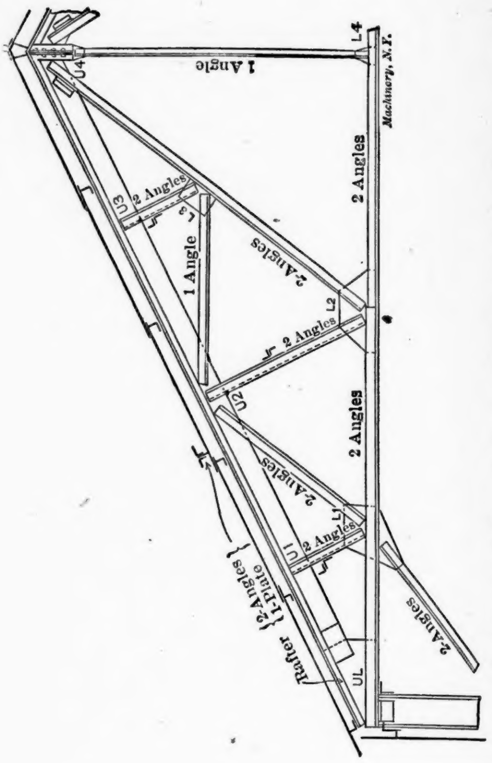
STRESSES IN THE MEMBERS OF ROOF TRUSSES.

The accompanying tables give the percentage of the total load on a roof truss which each member of that truss bears. This load is made up of the weight due to the material of the roof covering, slate, corrugated iron, or other material; the weight due to miscellaneous loads, such as shafting, suspended machinery, etc.; and the load due to wind pressure and snow. The sum of all these for a surface whose length is the total width of the roof from eve to eve, and whose width is the distance between the center line of adjacent spans, is the total load on each span.

Having found the total load, select a suitable form of truss from among those represented by the skeleton diagrams in the accompanying data sheets. In these diagrams the tension members are represented by single lines, and the compression members by double lines. Under the column representing the desired pitch of roof will be found a coefficient for each member of the truss. This coefficient, multiplied by the total load, gives the tensile or compressive stress, as the case may be, for that member. Knowing the values of these stresses, suitable sections may be calculated from the data given in the handbooks of the various steel companies. The pitch of a roof is the height of the span divided by its length.

The cut below illustrates the construction of a common form of roof truss. "Erection marks," U L, L 1, L 2, etc , are shown at all the connection points. Every member which goes to make up the connection at any given point is marked in the shop with the erection mark for that connection, and the drawings for each of the parts are similarly marked. This facilitates both the checking of the calculations and the erection of the structure.



Roof Truss with three Struts on a Side, showing Erection Marks.

Compiled by R. F. Kiefer.

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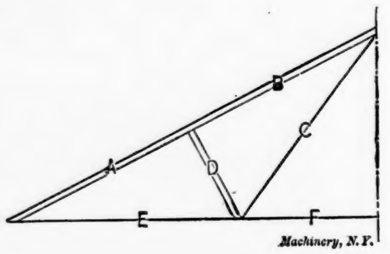
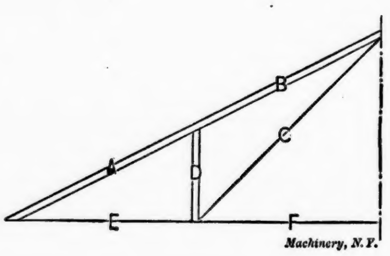
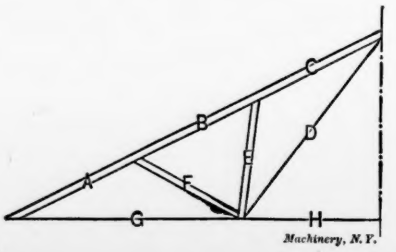
STRESSES IN THE MEMBERS OF ROOF TRUSSES. (Continued.)



	1-3 Pitch.	30° Pitch.	1-4 Pitch.	1-5 Pitch.
A	.676	.75	.839	1.01
B	.537	.625	.727	.917
C	.188	.217	.25	.312
D	.208	.217	.224	.232
E	.563	.649	.75	.938
F	.375	.43	.5	.625



	1-3 Pitch.	30° Pitch.	1-4 Pitch.	1-5 Pitch.
A	.676	.75	.84	1.01
B	.676	.75	.84	1.01
C	.313	.33	.353	.4
D	.25	.25	.25	.25
E	.563	.65	.75	.938
F	.375	.433	.5	.625



	1-3 Pitch.	30° Pitch.	1-4 Pitch.	1-5 Pitch.
A	.742	.833	.937	1.123
B	.58	.666	.759	.932
C	.555	.666	.785	1.0
D	.242	.288	.338	.418
E	.155	.167	.18	.202
F	.155	.167	.18	.202
G	.617	.721	.838	1.043
H	.375	.433	.5	.625

S 6 x 9 DATA SHEETS.

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These data sheets are intended to be cut into four sections, 6 x 9 inches in size. The may then be bound into note-book form for convenient reference, by means of staple inserted in holes punched at the points indicated. A suitable binder for these dat sheets will be supplied for 25 cents, which has an open back and will hold an indefinit number of 6 x 9 sheets, depending on the length of staples used.

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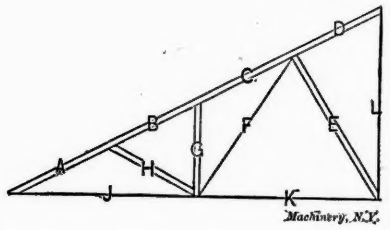
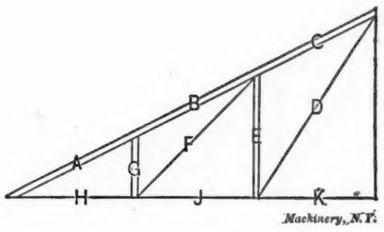


	1-3 Pitch.	30° Pitch.	1-4 Pitch.	1-5 Pitch.
A	.789	.875	.979	1.178
B	.677	.75	.839	1.005
C	.677	.75	.839	1.005
D	.451	.5	.562	.673
E	.21	.217	.225	.2445
F	.21	.217	.225	.2445
G	.125	.125	.125	.125
H	.1127	.125	.14	.168
J	.665	.758	.875	1.094
K	.469	.542	.625	.782
L	.375	.375	.375	.375



	1-3 Pitch.	30° Pitch.	1-4 Pitch.	1-5 Pitch.
A	.751	.833	.932	1.122
B	.751	.833	.932	1.122
C	.6	.667	.745	.898
D	.279	.289	.301	.325
E	.25	.25	.25	.25
F	.208	.220	.236	.267
G	.167	.167	.167	.167
H	.625	.722	.833	1.042
J	.5	.577	.667	.833
K	.375	.433	.5	.625

Compiled by R. F. Kiefer.

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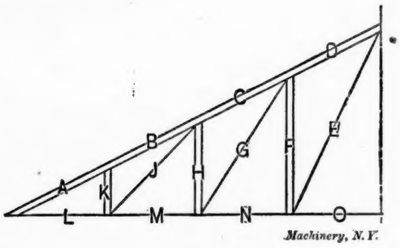
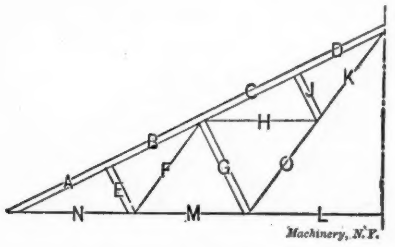


	1-3 Pitch.	30° Pitch.	1-4 Pitch.	1-5 Pitch.
A	.789	.875	.978	1.178
B	.789	.875	.978	1·178
C	.676	.75	.839	1.009
D	.563	.625	.699	.841
E	·267	.272	.28	.294
F	.25	.25	.25	.25
G	.210	.217	.225	.294
H	.188	.188	.188	.188
J	.156	.165	.177	.2
K	.125	.125	.125	.125
L	.656	.758	.875	1.094
M	.563	.65	.75	.938
N	.469	.541	.625	.731
O	.375	.433	.5	.625



	1-3 Pitch.	30° Pitch.	1-4 Pitch.	1-5 Pitch.
A	.79	.875	.978	1.18
B	.72	.813	.922	1.133
C	.651	.75	.866	1.087
D	.532	.688	.81	1.04
E	.104	.109	.112	.116
F	.094	.109	.125	.157
G	.208	.217	.224	.232
H	.094	.109	.125	.157
J	.104	.109	.112	.116
K	.282	.326	.375	.471
L	.376	.434	.5	.625
M	.564	.651	.75	.94
N	.658	.76	.875	1.096
O	.188	.217	.25	.314
Tang	.667	.577	.5	.4
Sec.	1.202	1.155	1.118	1.077

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